

ATTACHMENT J.4.74
ENVIRONMENTAL ALARA, EP-0007

CONTROL NUMBER: _____
SITE PROCEDURE EP-0007
REVISION NO. 0

ENVIRONMENTAL ALARA

EP-0007

EFFECTIVE Date: June 26, 1997

Originator (Subject Expert):

Betsy Bueh for Scott Hartman 6/26/97
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Date

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6-26-97
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6/26/97
Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 1 of 25	

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1.0	PURPOSE	3
2.0	SCOPE	3
3.0	REFERENCES	3
4.0	RESPONSIBILITIES	4
5.0	GENERAL	7
6.0	PREREQUISITES	9
7.0	PROCEDURE	9
	7.1 ENVIRONMENTAL ALARA EVALUATIONS	9
8.0	RECORDS	16
9.0	DRIVERS	16
10.0	DEFINITIONS	16

LIST OF ATTACHMENTS

ATTACHMENT A - ENVIRONMENTAL ALARA CHECK LIST	17
ATTACHMENT B - BEST AVAILABLE TECHNOLOGY DISCUSSION	21

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 3 of 25	

1.0 PURPOSE

- 1.1 The purpose of this document is to define how a site project, process, or activity determines and documents the requirements for **ENVIRONMENTAL ALARA (As Low As Reasonably Achievable)** using a "Graded Approach" on an ENVIRONMENTAL ALARA Review/Evaluation - Report and Check List.
- 1.2 There are two attachments to this site procedure. The **first** attachment is the general overall review (a questionnaire) of the degree of environmental control of potential releases that is needed. The **second** attachment gives examples of Best Available Technology (BAT) (Air, Water, Wastewater, and other applications) and Applicable and Relevant or Appropriate Regulation (ARAR) items which may provide guidance to the environmental and/or project engineer to make either a control selection or recommendation for the project or activity.

2.0 SCOPE

- 2.1 This site procedure applies to all Fluor Daniel Fernald (FDF) projects/activities, employees, and subcontractors at the Fernald Environmental Management Project (FEMP).
- 2.2 Each project, process review, or activity undertaken by Fluor Daniel Fernald (FDF) must consider control actions to ensure that (1) potential radiological exposure to the public and the environment from ionizing radiation is minimized and maintained ALARA, and (2) documentation is maintained to demonstrate this process.
- 2.3 The term "REASONABLY" in the acronym ALARA means precisely that. A parallel to the control philosophy "Reasonably Available Control Technology" (RACT) may be drawn. "BEST" Available Technology (BAT) is considered a step beyond RACT. Therefore, when BAT is considered, the site project and environmental engineers are normally addressing control technologies that meet or exceed those needed to meet the DOE and site requirements to employ ALARA philosophy and technology.

3.0 REFERENCES

- 3.1 29 CFR 1926, "Safety And Health Regulations For Construction"
- 3.2 Doe Order 231.1, "Environmental, Safety, and Health Reporting"
- 3.3 RM-0012, "Quality Assurance Program"
- 3.4 RM-0015, "FEMP ALARA Requirements Manual"
- 3.5 ED-12-2007, "ALARA Review"
- 3.6 PL-3025, "National Environmental Policy Act (NEPA) Compliance Plan"
- 3.7 PL-3028, "Environmental Protection Implementation Plan"
- 3.8 RM-0032, "FEMP Records Management Program Administrative Procedures"

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 4 of 25	

3.9 RM-0039, "Stormwater Pollution Prevention Plan"

4.0 **RESPONSIBILITIES**

4.1 **DIVISIONAL Project Manager** is responsible for the following :

1. Initiate the ENVIRONMENTAL ALARA process and insert into the project design process the ENVIRONMENTAL ALARA Review/Evaluation - Report and Check List.
2. Make sure that engineers adhere to this procedure and properly document their evaluation actions.
3. Review the completed ENVIRONMENTAL ALARA package for both correctness and completeness.
4. Initial approval on the package if it meets the requirements of the ENVIRONMENTAL ALARA Procedure.
5. Submit the final document to the Site Environmental Compliance (EC) Manager for review, dissemination for review, and final approval.

4.2 **DIVISIONAL Project Engineer/ Engineering Support Services Engineer/ Maintenance Engineer** are responsible for the following :

1. Evaluate project(s), as part of the design process, for the applicability of ENVIRONMENTAL ALARA principles and controls.
2. Document this by using the ENVIRONMENTAL ALARA Review/Evaluation - Report and Check List.
3. Incorporate control system determinations into the design of the project(s) and all appropriate bid packages.
4. Sign the ENVIRONMENTAL ALARA package when the requirements of the ENVIRONMENTAL ALARA Procedure are met.

4.3 **DIVISIONAL Project Managers** are responsible for the following :

1. Check the design efforts of Engineering Support Services personnel, if applicable, to be sure that the ENVIRONMENTAL ALARA Review/ Evaluation - Report and Check List are part of the design and bid packages and are correct to the best of their knowledge of the particulars of the project(s).
2. Evaluate the project(s) themselves, if Engineering Support Services personnel are not utilized, for compliance with and integration of the

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 5 of 25	

ENVIRONMENTAL ALARA Procedure in their project.

3. Review the completed ENVIRONMENTAL ALARA documents for both correctness and completeness when the design and bid packages are completed.
4. Initial the completed ENVIRONMENTAL ALARA package when the requirements of the ENVIRONMENTAL ALARA procedure are met.
5. Ensure that the needed control system(s), if any, are in bid specifications and are properly implemented in the project(s).
6. Determine that the control system(s) as installed are adequate for the project(s) and meet the intent of the ENVIRONMENTAL ALARA Procedure.

4.4 DIVISIONAL Project Engineers are responsible for the following :

1. Review the ENVIRONMENTAL ALARA work performed by Engineering Support Services personnel, if any, for completeness and correctness based on their knowledge of the particulars of the project(s).
2. Prepare the ENVIRONMENTAL ALARA Procedure documents themselves if the ENVIRONMENTAL ALARA Review/Evaluation is not done by a support group.
3. Incorporate the results of the ENVIRONMENTAL ALARA Review into the design report and bid packages, as appropriate, if they perform the review.
4. Sign the ENVIRONMENTAL ALARA package if they perform the ENVIRONMENTAL ALARA review and if the requirements of the procedure are met.
5. Initial the ENVIRONMENTAL ALARA review after checking the work if the review is performed by a support group.
6. Ensure that any needed control systems are adequately addressed in system bids received.
7. Ensure that the control system(s), both as designed and installed, are adequate for their project(s).

4.5 Maintenance Managers are responsible for the following if design work is performed :

1. Ensure that ENVIRONMENTAL ALARA Review/Evaluation - Report and Check List is performed on any project(s) on which they perform the design.

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 6 of 25	

2. Evaluate the project(s) ENVIRONMENTAL ALARA Review documents for accuracy and completeness, based on their knowledge of the project(s), if the work is performed by support groups.
3. Review the completed ENVIRONMENTAL ALARA document(s) for completeness and correctness when their engineers perform the work.
4. Initial the ENVIRONMENTAL ALARA package after checking the completed package for both completeness and correctness.
5. Determine that the control system(s) as installed both meets the need of the project(s) and meets the requirements of the ENVIRONMENTAL ALARA Procedure.

4.6 Maintenance Engineers are responsible for the following :

1. Evaluate the ENVIRONMENTAL ALARA Review documents prepared by support groups for both accuracy and completeness, based on their knowledge of the project.
2. Prepare the ENVIRONMENTAL ALARA Review on the project(s) if this has not been done by support groups.
3. Sign the ENVIRONMENTAL ALARA Review documents if they perform the ENVIRONMENTAL ALARA Review and if the requirements of the procedure are met.
4. Initial the ENVIRONMENTAL ALARA Review after checking the work if the review is performed by a support group.
5. Incorporate the results of the ENVIRONMENTAL ALARA Review into the design report and the bid packages, as appropriate, if they perform the ENVIRONMENTAL ALARA Review.
6. Ensure that any needed control system(s) are inserted into the bid packages for the project(s) and are adequately addressed in system bids received.
7. Ensure that the control system(s), both as designed and installed, are adequate for their project(s).

4.7 Environmental Compliance is responsible for the following:

1. Provide guidance, oversight, and support to other divisions/projects required to perform ENVIRONMENTAL ALARA Reviews.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 7 of 25	

2. Maintain files of all project/activity ENVIRONMENTAL ALARA Review documents.

NOTE : The ENVIRONMENTAL ALARA document, once completed, will be reviewed by all the appropriate review organizations which will include, but are not limited to, the ALARA Committee, Project Management, Environmental Compliance, Radiological Control personnel, the Engineering Support Systems group, and Project Engineering group(s).

5.0 GENERAL

- 5.1 The requirements for the Environmental ALARA ("As Low As Reasonably Achievable") Program are as follows:
 1. The Fernald Environmental Management Program Environmental ALARA Plan (no number was assigned to this plan), which was approved by DOE-Ohio Field Office, Fernald Area Office in October 1996, acts as the defining instrument for the Environmental ALARA Program. The Environmental ALARA Process will include maintaining a list of all active projects and their actual/anticipated cumulative effects on the public, the maximally exposed/impacted individual, and the environment.
 2. RM-0015, FEMP ALARA Requirements Manual, implements the requirements of DOE Order 5400.5 and assigns the responsibility for the implementation of the FEMP ALARA Plan, including the administrative system for completing ALARA evaluations and development of site-specific guidance for completing Environmental ALARA evaluations.
 3. DOE Order 231.1, Environmental, Safety, and Health Reporting, impacts the ENVIRONMENTAL ALARA Program and addresses ionizing radiological exposure reporting; occupational, safety, and health actions; and environmental control mitigating steps taken to reduce exposure to ionizing radiation.
- 5.2 A "**GRADED APPROACH**" (see DEFINITIONS) will be used in performing the Environmental ALARA evaluation. As the total mass of potentially releasable material or the concentration of the hazardous constituents increases, the level of detail in the review increases. The lower the release potential, the lower the level of concern, and the lower the level of detail needed for the evaluation.
 1. Trigger Levels shall be established to identify activities/conditions that may require additional radiological control measures.
 2. For contaminated soil materials, there will be greater emphasis on ENVIRONMENTAL ALARA for soils having a total uranium concentration of 50 parts per million (ppm) or greater outside the plant area and soils

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 8 of 25	

having a total uranium concentration of 20 ppm or greater within the plant area, unless an Operable Unit (OU) Record Of Determination (ROD) establishes another limit.

3. If the activity is covered under an OU ROD, the provisions of ENVIRONMENTAL ALARA are addressed through the Applicable and Relevant or Appropriate Regulation process.
- 5.3 Engineering Document ED-12-2007, ALARA REVIEW, defines how the FDF ALARA Committee reviews the ALARA analyses of site projects and activities.
- 5.4 ENVIRONMENTAL ALARA is performed in addition to OCCUPATIONAL ALARA evaluations.
 1. On Radiological Work Permits (RWPs), there is a box to be checked if there are environmental releases anticipated.
 2. Local controls for OCCUPATIONAL ALARA are among the most effective controls for ENVIRONMENTAL ALARA.
- 5.5 In the ENVIRONMENTAL ALARA evaluation, all applicable site personnel, such as engineering, project, and environmental personnel, review and document the evaluation of various control techniques and the selection of reasonable controls for radionuclides that have the potential to be released to the environment. Documentation of the evaluation is a requirement of DOE Order 5400.5, "Radiation Protection of the Public and the Environment." Controls may be administrative and/or engineering controls, with engineering controls preferred. Completion of the ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST documents that an Environmental ALARA evaluation has been performed.
- 5.6 Site personnel from the initial engineering design stage through project execution and completion need to be aware of the Environmental impacts (air, water, and soil contamination problems; waste issues; and release of materials from the site) of the project or activity with which they are involved. If design work is performed by off-site personnel, then the FDF contact person needs to make the off-site personnel aware of our ENVIRONMENTAL ALARA requirements. To assist the engineering- and project-related personnel in their Environmental ALARA assessments, an **ENVIRONMENTAL ALARA Check List (Attachment A) has been prepared**. The initial portion of Attachment A provides a form to be used to determine and document the extent of environmental control required for the project.
- 5.7 When Environmental ALARA issues are considered, evaluations of all the areas potentially impacted will be considered. Among these items should be contractual obligations which need to be included in agreements with subcontractors who may be performing tasks with environmental impacts.
- 5.8 Whenever possible, the evaluation of control options and identification of controls

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 9 of 25	

documented in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial design documents to satisfy the Applicable and Relevant and Appropriate Regulations (ARARs) identified in the Record of Decision (ROD) document will be used to satisfy the Environmental ALARA requirements and

will be noted on the ENVIRONMENTAL ALARA Check List, rather than repeating past efforts. The documents will be cited in the ENVIRONMENTAL ALARA Check List and be attached to it.

- 5.9 PL-3025, National Environmental Policy Act (NEPA) Compliance Plan, is included in the ENVIRONMENTAL ALARA Program because NEPA issues are raised in the Check List.
- 5.10 PL-3028, Environmental Protection Implementation Plan, is impacted by the ENVIRONMENTAL ALARA Procedure because potential and actual environmental occurrences and environmental monitoring are addressed.

6.0 PREREQUISITES

None.

7.0 PROCEDURE

7.1 ENVIRONMENTAL ALARA EVALUATIONS

NOTE : The following procedure addresses the preparation of the ENVIRONMENTAL ALARA Check List (Attachment A) for the project- or activity-specific environmental evaluation. The Check List may initially be prepared by engineers from (1) DIVISIONAL Project Groups, (2) Engineering Support Services, or (3) Maintenance Engineering, if design work is done, or any knowledgeable party. It helps evaluate whether any control system is needed for the project.

With the emphasis on "projectization," the DIVISIONAL Project Group personnel are anticipated to increasingly be responsible for this work. Project Managers will in most cases be the party most responsible for the ENVIRONMENTAL ALARA Check List efforts.

If prepared by Engineering Support, it will be reviewed by at least both Environmental Compliance (EC), which will act as a Facilitator for completion and implementation of the document, and the Project Group involved. If it is prepared by either the Project Group or Maintenance Engineering personnel, it will be reviewed by at least the Project Environmental Compliance Manager and then the Site Environmental Compliance (EC) Manager.

The Site EC Group input as a Facilitator will help the engineers, who are

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 10 of 25	

ultimately responsible for the accuracy and completeness of the form, be sure that the needed items are considered and addressed fully.

Initiating Manager (DIVISIONAL Project Manager)

1. Insert into Engineering Support Services or Division/Group procedures that ENVIRONMENTAL ALARA IS TO BE ADDRESSED and that the ENVIRONMENTAL ALARA Check List is to be prepared in all Project Management procedures and Project Design procedures.
2. Alert all appropriate engineering personnel of these changes to Division/ Group procedures to be sure that these people are aware of this requirement.
3. Revisit this requirement with engineering personnel periodically annually.

Initiating Engineer (DIVISIONAL Project/Engineering Support Services)

4. Prepare the Part I general information needed for the ENVIRONMENTAL ALARA Review/Evaluation - Report and Check List (referred to from now on as "the Check List").
 - A. Request a National Environmental Policy Act (NEPA) review if it is deemed necessary.
 - B. Request a Project Evaluation for Air/Water Permit/Notification Request (PEAPR) to determine whether permitting may be necessary or if an item is covered by a Comprehensive Environmental Response, Compensation, and Liability (CERCLA) exclusion.
 - C. Request a review by Project/Operable Unit (OU) personnel to determine whether a question has been addressed in the Record of Decision (ROD).
5. Prepare the Part II activity description including the potential for material release from the project (Items 1-6). It addresses the potential for exposure of the site employees, the public, or the environment to ionizing radiation.
 - A. Attach additional sheets if more space is required to completely describe the project, to present calculations, etc.
 - B. Indicate if the project does not have the potential to release radionuclides.
 1. Sign and date the document on the bottom of the first page of the Check List. The evaluation is completed if

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
Page 11 of 25		

there is no potential to emit radionuclides.

2. **Place the original form in the project file.**
 3. **Submit a copy of the completed form to Environmental Compliance.**
- C. Address the potential for the project or activity, either during construction or operation, to emit a routine or non-routine release of radionuclides as stack emission, spill, stormwater discharge, release to wastewater, etc.
6. Present all estimated and calculated data regarding potential releases (Part II, Items 7-12) or reference the existing document (work plan, design document, etc.) containing the data, if available.
- A. Use additional sheets, if necessary, to fully answer questions, present calculations, etc.
 - B. Give a presentation of the activity that may lead to the release if there is the potential for a release.
 1. Address the radioactive materials which may be released and their physical state at the time of release and after the release.
 - C. Present the estimated or predicted amount of the release.
 1. Include the method or logic followed to generate the estimate of the release.
 - D. Present all applicable information if the material is a mixed or hazardous waste .
 1. Discuss this information because it is particularly important in determining the potential disposal options which may be available to the site.
7. Prepare Part III of the Check List in which protection options and potential control systems are discussed.
- A. Consult Attachment B, Best Available Technology Discussion, and any other sources considered useful when addressing potential radionuclide control options.
 1. Review Attachment B for various ways that a potential radionuclide release might be controlled when

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 12 of 25	

completing Parts III, IV, and V of the Check List.

2. Review, estimate, and categorize the project's potential air emissions, based on the information currently available.
 3. Consider the thoroughness and completeness of the information given because it is very important to the accuracy of this evaluation.
 4. Utilize Air support personnel assistance in reviewing the air concerns.
 5. Utilize Wastewater support personnel for water, wastewater, and stormwater releases of radionuclides.
 6. Evaluate the site Stormwater Pollution Prevention Plan, RM-0039, for use here also.
 7. Address the need for Secondary Containment of liquid streams to reduce the potential for spill releases by the project or activity.
 8. Review the potential impact of the waste streams from the project.
 9. Consult EC personnel who are regularly involved in RCRA and CERCLA determinations when considering these areas.
- B. Consider the proper packaging of any waste streams that may be shipped off site.
- C. Consider the FEMP Material Release Policy for project impact.
8. Prepare Part IV of the Check List considering the positive and negative impacts of the controls that may be employed, including control costs, and the applicable dose limits and Derived Concentration Guidelines (DCGS).
- A. Consider Project emission evaluations completed as a part of State and Federal regulations, such as the Clean Air Act Amendments (CAAA); the Clean Water Act (CWA); the Resource Conservation and Recovery Act (RCRA); and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which may be considered "Equivalent Evaluations," which may reduce the necessity of performing separate Environmental ALARA assessments.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 13 of 25	

B. Address whether monitoring is indicated for the solution elected and, if indicated, the methods used to monitor the performance of the control system chosen, which may include one or more of the following:

1. Stack monitors
2. Ambient air monitors
3. Room monitors
4. Wastewater sampling
5. Stormwater monitoring
6. Fenceline particulate monitoring
7. "HOT SPOT" monitoring
8. Waste sampling
9. Secondary containment monitoring
10. Soil sampling

C. Determine whether the use of predictive computer modelling may be needed to determine the impact of a release to the maximally exposed or impacted individual offsite and the population dose to the population living around the FEMP Site.

9. Complete the follow up items itemized in Part V, including reporting requirements, any remaining issues which should be considered, and other things which seem to be indicated or needed.

Initiating Manager (DIVISIONAL Project Manager)

10. Review and check the ENVIRONMENTAL ALARA Check List prepared for the project by the appropriate engineer(s) in the group.
11. Return the document for further rework, if additional input is needed.
12. Approve the ENVIRONMENTAL ALARA Check List when completed satisfactorily by signing in the appropriate spot(s).
13. File the original in the Project File, per MS-0003.
14. Forward a copy of the Check List to the Manager of Environmental Compliance for review and concurrence.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 14 of 25	

15. Rework the Check List to resolve areas of concern if returned by the Manager of Environmental Compliance either personally or delegate to the Initiating Engineer for rework.

16. Sign the reworked Check List document when it is completed.

Site Manager of Environmental Compliance

17. Present the completed Check List document to the appropriate Environmental Compliance personnel for review and concurrence to determine that all items of concern are addressed and the appropriate control system(s) is specified. The site ALARA Committee may be included in this review.

Environmental Compliance Personnel

18. Review the Check List document utilizing all appropriate source documents and personnel to determine that all items of concern are addressed and the appropriate control system(s) is specified .

19. Return the document to the Manager of Environmental Compliance with approval signature if the Check List document is complete or with a list of concerns to be returned to the Initiating Manager if additional work is needed.

20. Review the returned Check List document when the items of concern have been addressed and if the Manager of Environmental Compliance requests further review.

21. Return the modified Check List document to the Manager of Environmental Compliance with signature if concerns are met or for further work if concerns remain.

Manager of Environmental Compliance

22. Send the approved Check List document to any other groups whose input is needed, especially the group which perform the Project, for review and concurrence.

23. Return the Check List document to the Initiating Manager if additional work is needed.

24. Review or have reviewed the returned Check List document after items of concern have been addressed. (Refer to Item 1 above.)

Manager of Reviewing Group

25. Review or have reviewed the Check List document for a project, after the

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 15 of 25	

Initiating group and Environmental Compliance Group have approved the document, to ensure that all concerns are addressed and the appropriate control system(s) is specified.

Engineer of Reviewing Group

26. Review the Check List document for the Project to determine that all areas of concern are addressed and the appropriate control system(s) is specified.
27. Return the Check List document to the Manager of the Reviewing Group and sign it if the document is complete or with a list of concerns attached.

Manager of Reviewing Group

28. Return the Check List document to the Manager of Environmental Compliance for appropriate action.

Manager of Environmental Compliance

29. Sign the Check List document for the Project when all approvals have been obtained.
30. Copy the finalized Check List document for the Environmental Compliance files.
31. Send a copy of the Check List document to the **site ALARA Coordinator** when all other groups involved have approved the document.
32. Return the signed original to the Initiating Manager for inclusion in the Project file.

Initiating Manager

33. File the completed and approved Check List document in the Project File, discarding any earlier, not fully approved copies of the Check List document.
34. Distribute the completed and approved document to all Managers of reviewing groups and other interested parties.
35. Ensure that the requirements of the Check List document are incorporated by Initiating Group Engineers in Project design documents and specification sheets.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 16 of 25	

8.0 **RECORDS**

The following documents will be generated as a record as a result of this procedure and will be managed according to RM-0032, "FEMP Records Management Program Administrative Procedures":

ENVIRONMENTAL ALARA Review/Evaluation Check List

9.0 **DRIVERS**

9.1 **10 CFR 835, "Occupational Radiation Protection"**

9.2 **DOE Order 5400.5, "Radiation Protection of the Public and the Environment."**

9.3 **29 CFR 1910, "Occupational Safety And Health Standards"**

10.0 **DEFINITIONS**

- 10.1 **BEST AVAILABLE TECHNOLOGY** - The maximum degree of emission reduction which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for the facility.
- 10.2 **CONTROLS** - Methods and technologies designed to mitigate, reduce, or eliminate air, water, and solids pollutants being emitted into the environment.
- 10.3 **GRADED APPROACH** - The ability to apply resources where the greatest benefit can be realized. The main purpose is to determine the appropriate of resources to be applied when implementing a program. Apply the highest level of resources to the most important equipment/facilities, and avoid expenditures where not warranted. A process by which the level of analysis, documentation, and actions necessary to comply with a requirement are made commensurate with the relative importance to safety, safeguards, and security; the magnitude of any hazard involved; the life-cycle stage, programmatic mission, and the particular characteristics of a facility.
- 10.4 **REASONABLY AVAILABLE CONTROL TECHNOLOGY** - Controls normally applied to existing emission sources, which are specified in "control techniques guidelines" (CTGs) or "control techniques guidance documents" (CTG documents). These two terms are presumed to be synonyms. CTGs limit the State's prerogative to decide on the sources to control and the levels of control to require. The CTG is a presumptive norm, but a State can develop a case-by-case RACT independent of the CTG so long as all the requirements of the Acts are satisfied where neither abatement technology nor complying solutions are technically or economically reasonable.

ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST

ENVIRONMENTAL ALARA Log No.:

Preliminary/Final Report:

ALARA PHILOSOPHY

The ALARA philosophy adopted by the FEMP requires that any exposure to ionizing radiation to general employees, the public, or the environment shall be minimized to the extent that social, technical, economic, practical, and public policy considerations allow.

PART I. ENVIRONMENTAL ALARA REVIEW AND EVALUATION INFORMATION

1. Name/title of individual reviewing activity:
2. Date review request to Environmental Compliance and review trigger (request for NEPA Services, PEAPR, etc.)(NOTE: If other significant documents will assist in this process, please note them and attach.)

3.Ongoing or planned activity?: _____

4.Activity ID No, if any: _____

5.Activity name: _____

PART II. DESCRIPTION OF ACTIVITY

1.Date of activity commencement: _____

2.Location of the potential release (building, area, etc.): _____

3.Date of identification of potential release: _____

4.Personnel initiating assessment: _____

5.Description of activity. Define the objective and scope of the issue to be analyzed: _____

6.Does the activity have potential for a routine or non-routine release of radionuclides (e.g. stack emissions, spills, etc. Include potential releases during construction)? _____

NOTE : If the answer to Item 6 is "NO," then no further evaluation is required. Sign and date the check list, send the Original to Environmental Compliance, and place a copy in the Project File.

DATE : _____ SIGNATURE : _____

7. Where is the material released or to be released for a future activity (e.g. air, water, soil, waste)?
Indoors _____ Environment _____

8.Radionuclides potentially released:

a. Radioactive material names, isotopes: _____

b. Physical state (gas, solid, liquid): _____

c. Drum/container markings (include FEMP Lot Markings): _____

d. Material Source/Origin: _____

ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST - Cont'd

PART IV - ENVIRONMENTAL ALARA EVALUATION Cont'd

1. Estimated performance of the control options. How much material will be controlled/removed (% , pounds, etc)? Identify advantages/disadvantages of each factor and control option. (Note: Use quantitative and qualitative methods when each is appropriate) _____

2. Identify cost information for control options (as relevant to the decision): _____

3. Applicable dose limits and Derived Concentration Guidelines (DCGs) from DOE 5400.5. Dose Impacts, if determined (e.g. Dose to the maximally exposed individual, population dose, etc). Are dose limits or DCGs exceeded? _____

4. Analytical Solution. Present the results of quantitative analysis, if one is performed. (Note: Per DOE 5400.5, qualitative analyses are acceptable, in most instances, for **ALARA** judgments, especially where potential doses are well below the dose limit.): _____

5. What are the preferred control options and what is the basis for their selection. Present results of optimization, as appropriate. (e.g. weighting of factors, environmental impacts, associated risks, costs and changes in cost, sensitivity analysis, changes in societal impact (doses), etc for options.) (Note: Per RM-0015, the primary methods used to control exposure shall be physical design features, such as filtration, confinement, etc.,. Administrative controls and procedural requirements shall be employed only as supplemental methods to control radiation exposure, unless physical design features are demonstrated to be impractical. For control of airborne radioactive material, the design objective shall be, under normal conditions, to avoid releases to the workplace atmosphere, the surrounding environment, and in any situation, to control the inhalation of such material by workers to levels that are **ALARA**; confinement and ventilation shall normally be used. Modifications to existing facilities and designs of new facilities shall meet the Environmental ALARA design criteria specified in DOE Orders 6430.1 and 5400.5.) _____

6. Environmental ALARA Decision. State the controls that constitute Environmental ALARA for the activity: _____

7. Implementation and monitoring. Describe the methods to be used to monitor achieved performance against desired targets (e.g. ambient air monitoring, stack monitoring, water sampling, surveillance, reporting, etc.): _____

8. Recommended actions (advise consideration of additional factors, control options, develop additional information, etc.): _____

9. Justification for recommendations: _____

ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST - Cont'd

PART II. DESCRIPTION OF ACTIVITY - Cont'd

9. Amount released (lbs., gallons, curies, etc.) and source:
a. To air: _____
b. To water: _____
c. To Soil: _____
d. To Waste: _____
e. To controlled and/or free release of material: _____
10. How was amount determined (estimated, weighed or otherwise measured?): _____
11. Off-site release? (Storm water, air release, other) _____
12. Is a hazardous/mixed waste involved? List any special factors as a result: _____

PART III. CONTROL OF RADIOACTIVE MATERIAL RELEASES

1. Describe or reference any protection options considered. Describe air emissions and water discharge control equipment, fugitive dust suppression, material lockdown, handling of waste, secondary containments, spill control equipment, controls on release of material, clean-up of spill material, administrative controls, etc.:

2. How will waste be packaged/labeled/stored(location)/handled? What procedure will be used? _____

3. Release of materials and equipment - surface contamination levels. Prior to being released, will property be surveyed to determine whether both removable and total surface contamination (including contamination present on and under any coating) are in compliance with the levels given in Figure IV-1 of DOE 5400.5 and that the contamination has been subjected to the **ALARA** process. Describe or reference documentation of the ALARA process. _____

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 21 of 25	

ATTACHMENT B - BEST AVAILABLE TECHNOLOGY DISCUSSION

Air/Water/Wastewater/Stormwater/Wetlands ENVIRONMENTAL ALARA

(1) Air - Dust Control (Visible Emissions)

(A) Paved Roads and Parking Areas

- (1) Use dust suppression material
 - (a) Water
 - (b) Resin(s)
 - (c) Oil
 - (d) Surfactant(s)
 - (e) Crusting Agent
- (2) Sweeping - Use of a mobile sweeper (TENNANT-type units) to minimize dust/silt build up on paved roads.
- (3) Speed Limitation - 15 mph speed limit
- (4) Wheel washer to remove caked mud/soil from truck wheels.
- (5) Surface Improvements - Repair and/or resurface roads, as needed.
- (6) Use Covers on Trucks - A cover prevents the material being conveyed (soil) from being blown from the truck.
- (7) Require that the driver's cab be kept clean.

(B) Unpaved Roadways and Parking Areas (Same as A)

(C) Material Storage Piles

- (1) Use of dust suppressant materials (See A.1.a-e)
- (2) Limit traffic in and around the storage piles.
- (3) Cover the piles or plant grass/vegetative cover on the pile(s) if they will be present for a long time. Cover the pile(s) when there is visible dust.

(2) Groundwater ("Perched water")

(An example is the South Plume, Pump and Treat)

- (A) Pump the water to the Advanced Wastewater Treatment (AWWT) System.

ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST - Cont'd	
PART V. FOLLOW UP ACTIONS	
1.	Reporting requirements, requests for temporary dose limits. [Note: DOE Operations Office shall notify, the relevant Program Offices(s) and the Deputy Assistant Secretary for Environment (EH-20) of actual or potential exposures of members of the public exceeding certain limits]. _____ _____ _____
2.	Remaining issues/actions required: _____ _____ _____
3.	Attachment List (attach modeling output, reports, data, etc used as a basis for the ENVIRONMENTAL ALARA review/assessment): _____ _____ _____
<div style="display: flex; justify-content: space-between;"> Report By: _____ Report Date: _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Reviewed By: _____ Review Date: _____ (yy-mm-zzz) </div>	

ENVIRONMENTAL ALARA REVIEW/EVALUATION - REPORT AND CHECK LIST

Distribution Form

ENVIRONMENTAL ALARA Log No.: _____

Follow Up Action Required: _____

Responsible Action Item No.:	Individual:

Distribute To:
C. Schilling ALARA Coordinator

Original-ENVIRONMENTAL ALARA Files

Distribution via E-mail completed:
 () ()

Title: ENVIRONMENTAL ALARA	DOCUMENT NO: EP-0007	
<i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	Effective Date:06/26/97	Revision No. 0
	Page 23 of 25	

ATTACHMENT B - BEST AVAILABLE TECHNOLOGY DISCUSSION (CONT.)

- (C) Discharge to Great Miami River-NPDES Permitted Outfall Number 4001.
- (D) Monitor any overflows at NPDES Permitted Outfall Number 4002 in accordance with NPDES permit conditions.
- (E) Inspect Controlled Basins on a "Quarterly Basis" under the Industrial Stormwater Pollution Prevention Plan (SWPPP) program (RM-0039) for Housekeeping, Best Management Practice (BMP) use, pollution prevention mechanisms, etc.
- (F) New IRDP control structures are sized and constructed in accordance with the SWPPP and Ohio EPA Rainwater and Land Development Manual.

UNCONTROLLED STORMWATER STREAMS [Discharges from NPDES Permitted Outfalls #4003 through #4006 to Paddy's Run]

- (A) The outfalls are monitored on a "Semi-Annual Basis" under permit conditions for Outfalls #4003 through #4006.
- (B) The outfalls are inspected on a "Quarterly Basis" at a minimum for Housekeeping, Maintenance, General Conditions, etc.
- (C) Weekly inspections are possible if there is an active construction area in process.

SOIL PILE RUN OFF CONTROLS

- (A) Provide cover for the pile, such as seeding or the use of pine emulsion.
- (B) Use a tarpaulin over the soil pile to prevent run off.
- (C) Employ a Silt Fence as a silt retention barrier.
- (D) Utilize Straw Bales at the entrance to stormwater sewers
- (E) Need to be included in a Stormwater Retention Ponds/Basins control system design.
 - (1) Be aware of the stormwater volume being retained in the stormwater retention ponds.
 - (a) If the volume may exceed the capacity of the pond, arrange to bypass the pond.
 - (b) Report this action to the U.S. and Ohio EPA, as per the NPDES Permit.
 - (2) Treat the stormwater adequately in the AWWT system.

ATTACHMENT B - BEST AVAILABLE TECHNOLOGY DISCUSSION (CONT.)

- (B) Treat the water in the AWWT unit for the removal of Uranium and other heavy metals.

(3) Wastewater (Process and Sanitary)

DRIVERS : (1) EP-0005, Review of Wastewater Discharges into the FEMP Wastewater Treatment System
(2) NPDES Permit IO 00004 * ED- Clean Water Act (CWA)

ROUTINE PROCESS AND SANITARY DISCHARGES

[Refer to individual Operating Procedures]

- (A) Convey contaminated wastewater stream from the source to the wastewater treatment piping system.
- (B) Pump the contaminated wastewater to the appropriate treatment system, such as the AWWT.
- (C) Treat the effluent properly, conforming to NPDES permit limits. (Pollutants of interest are Uranium, Chrome, Nickel, Copper, etc.)
- (D) Discharge to the Great Miami River after treatment.

SPECIAL WATERS (IDW, Decon Waters, Remediation Project Waters, etc.)

- (A) Received under EP-0005 Procedure to ensure that there is compliance with the National Pollutant Discharge Elimination System (NPDES) permit and other site requirements.
- (B) Treat within the wastewater treatment system capabilities to comply with NPDES discharge parameters.

(4) Stormwater

DRIVERS :

- (1) NPDES Permit IO 00004 * ED (CWA)
- (2) RM-0039, Stormwater Pollution Prevention Plan
- (3) EP-0005, Review of Wastewater Discharges into the FEMP Wastewater Discharge System

CONTROLLED STORMWATER STREAMS [Former Production Areas, Waste Pit Areas, some areas excavated under SEP-IRDPs]

- (A) Convey to the proper wastewater treatment system [example : Advanced Wastewater Treatment (AWWT)].
- (B) Treat by the appropriate method.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 25 of 25	

- (l) Soil sampling might include actual samples of soil in areas of concern, verification of sampling results, inspection of dust control systems (soil stabilization), and visual emission readings.

Title: ENVIRONMENTAL ALARA <i>Compliance with this procedure is mandatory while performing the activities within its scope. Only a controlled copy may be used in the performance of work.</i>	DOCUMENT NO: EP-0007	
	Effective Date:06/26/97	Revision No. 0
	Page 24 of 25	

ATTACHMENT B - BEST AVAILABLE TECHNOLOGY DISCUSSION (CONT.)

(3) Discharge the stormwater to the Great Miami River.

(F) Consider Diversion Ditches in the control system design.

(G) Employ Check Dams, as appropriate.

(5) Wetlands

(A) Minimize Impacts

(1) Do not disturb physically.

(2) Be aware of the potential impact of sediment loading (air, wastewater, and stormwater).

(3) Employ soil retention systems in stormwater drainage systems.

(6) Monitoring

(A) **Stack monitors** may be needed to obtain samples from off-gas streams. Examples include particulate matter, uranium, and alpha, beta, and gamma radionuclide analyses.

(B) **Ambient air** or "fenceline" monitors may be used. An example is the use of site "High Vol" particulate samplers as part of the Integrated Environmental Monitoring Plan (IEMP) or the temporary use of the units at or near buildings being taken down.

(C) **Room Air Monitors** (Occupational Monitors) might be used.

(D) **Wastewater sampling** might be indicated. Examples of their use are wastewater sampling prior to discharge, temporary stream samplers, and the use of "permanent" National Pollutant Discharge Elimination System (NPDES) samplers.

(E) **Stormwater monitoring** may be required or be indicated. Examples are visual inspection of stormwater controls, grab samples of rainwater run off, installation of temporary or permanent samplers, and NPDES sampling.

(F) "HOT SPOT" monitoring may be for air, wastewater, or soil sampling, depending upon the medium of concern.

(G) **Waste sampling** includes sampling of continuous or intermittent waste streams, inspections of waste handling, Quality Assurance sampling, and other documentation.

(H) **Periodic inspection** of "Secondary Containment" surrounding tanks or other items containing/restraining liquids.